

LISTERIA MONOCYTOGENES ISOLATIONS IN ALBERTA 1951-1970

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LISTERIC INFECTION of animals was recorded in Alberta as early as 1949 (1). Since that time, the disease has been sporadic but diagnosed in a number of species throughout the province.

MATERIALS AND METHODS

The case records and the annual reports of Veterinary Services Division of the two Alberta Department of Agriculture diagnostic laboratories located at Edmonton and Lethbridge respectively were surveyed. The diagnosis of listeric infection was based on the listed clinical signs, gross pathology, histopathological findings and isolation of *Listeria monocytogenes* from submitted material. A submission consisted of one or more birds or animals or portions from one or more birds or animals.

RESULTS AND DISCUSSION

Table I records the number of submissions from which *L. monocytogenes* was isolated in

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the years 1951-70. It was apparent that listeric infection was common in chinchillas, sheep, chickens, cattle and swine compared with the records for carnivora. During the surveyed period, one isolation was made from each of the following: dog, cat, mink, goat, turkey, goose, duck, canary and hungarian partridge.

In the present survey, there were no recorded cases in the equine species although listeric infection has been reported in ponies (3) and in a colt (8).

Listeric infections are manifested by three distinct syndromes. Each probably has a separate pathogenesis.

The three recognized syndromes are: (a) infection of the pregnant uterus resulting in abortion, (b) septicemia with visceral miliary abscesses, and (c) encephalitis (5). Visceral listeric infection, with or without meningitis, occurs most commonly in monogastric animals and in young ruminants; the meningoencephalitic form of the disease is more common in adult ruminants (4). A review of the case reports of the present series indicated that each of the three syndromes has been diagnosed in Alberta. Surveys of the incidence of listeric infection in Pennsylvania (7) and in Great

TABLE I
LISTERIOSIS ISOLATIONS IN ALBERTA 1951-1970

| Year | Cattle | Swine | Sheep | Chinchilla | Rabbit | Chicken | Total |
|-------|--------|-------|-------|------------|--------|---------|-------|
| 1951 | | | | | | 3 | 3 |
| 1952 | | | | 3 | | 1 | 4 |
| 1953 | | | 2 | 12 | | 2 | 17 |
| 1954 | | 3 | 1 | 11 | | | 15 |
| 1955 | 2 | | | 7 | | 2 | 12 |
| 1956 | 1* | | | 13 | | | 14 |
| 1957 | | 1 | 1 | 8 | | | 11 |
| 1958 | | 1 | 4 | 9 | | 1 | 15 |
| 1959 | | 2 | | 2 | | 1 | 5 |
| 1960 | 1 | | 1 | 3 | | 3 | 9 |
| 1961 | | | 1 | 4 | | | 5 |
| 1962 | | | | 1 | | 1 | 2 |
| 1963 | 4 | | 1 | 3 | | 1 | 11 |
| 1964 | | | 3 | 1 | | | 4 |
| 1965 | 4 | | 5 | 1 | | 7 | 17 |
| 1966 | 4(2*) | 1 | 2 | 10 | 1 | 6 | 24 |
| 1967 | 1* | 4 | 3 | 1 | | 2 | 11 |
| 1968 | 5 | | 5 | 2 | | 2 | 14 |
| 1969 | 7(4*) | 3 | 5 | 10 | | 1 | 27 |
| 1970 | 4(2*) | 3 | 16 | 5 | 1 | 9 | 40 |
| Total | 33 | 18 | 50 | 106 | 2 | 42 | 260 |

*Indicates isolations from foeti: Single isolations were made from the following species in the years indicated: dog (1953), cat (1970), mink (1957), goat (1970), turkey (1969), domestic goose (1963), domestic duck (1960), canary (1963) and hungarian partridge (1955).

TABLE II
COMMON OBSERVATIONS IN THE SPECIES MOST FREQUENTLY AFFECTED WITH LISTERIOSIS

| Clinical Signs | Chinchilla | Sheep | Chicken | Cattle | Swine |
|-----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Animals occasionally died suddenly. Anorexia, listlessness, diarrhoea with weight loss, incoordination were noted commonly. | Affected animals showed increased body temperature, anorexia, head "pressing", circling, convulsions, paralysis and death. | Birds became pale and listless and death was usually rapid. | | | General weakness and loss of appetite were noted. Piglets showed muscle tremors and appeared to be blind. |
| Isolation from (organ) | Common: Liver, intestine, colon and spleen. Occasional: Lung, stomach and heart. | Common: Medulla. Occasional: Cerebrum, cerebellum, kidney and lung. | Common: Heart. Occasional: Spleen and liver. | | |
| Gross Lesions | Miliary abscesses were noted in affected organs. | Meningitis and congestion of the meninges were observed. | Myocardium was pale and severe pericarditis was noted. Small white abscesses were seen in the spleen and liver. | Foetis Common: Stomach contents. Occasional: Liver and placenta. <i>Neonates and Adults</i> Common: Medulla, gall bladder, spleen, kidney and lung. | Liver was bright red in colour with numerous small abscesses. Multiple pin point areas of necrosis in the spleen and subcapsular and cortical hemorrhages in the kidney were observed. |
| Microscopic Lesions | Microabscesses were seen in the liver, spleen, intestine and colon. | Microabscessation and perivascular "cuffing" were seen in the medulla and midbrain. Meningitis and focal gliosis were noted in the cerebellum. | Necrosis with heavy mononuclear cell infiltrations were noted in the heart. Miliary abscesses containing chiefly mononuclear cells were observed in the spleen and liver. | Foetis Focal necrosis in the liver and focal collections of bacteria were noted in the placenta, liver, lung and spleen. <i>Neonates and Adults</i> Lymphocytic "cuffs" in capillaries and micro-abscessation were seen in the medulla. Purulent nephritis and miliary abscesses were noted in the liver. | |

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Britain (6) confirm the observations of this survey that listeric infection is low in incidence and sporadic in nature.

A summary of the findings seen in the five species where listeric infection was most commonly diagnosed is given in Table II. Chinchillas and chickens were affected by the visceral form of the disease which was also commonly encountered in newborn swine. The encephalitic syndrome was observed most frequently in sheep and cattle.

SUMMARY

Listeric infection has been detected sporadically and infrequently in livestock populations in Alberta during the years 1951-70. The cases recorded of mammalian and avian listeriosis represent only those cases in which a laboratory diagnosis was obtained and consequently do not necessarily reflect the true incidence of listeriosis in the province.

The disease was diagnosed in decreasing order of frequency in chinchillas, sheep, chickens, cattle and swine. During the surveyed period, one isolation was made from each of the following: dog, cat, mink, goat, turkey, goose, duck, canary and hungarian partridge.

RÉSUMÉ

De 1951 à 1970, on a diagnostiqué rarement et seulement de façon sporadique la listériose au sein du cheptel de l'Alberta. Les cas diagnostiqués chez les mammifères et les volailles ne représentent que ceux qui ont été confirmés par le laboratoire; ils ne reflètent donc pas nécessairement l'incidence réelle de cette maladie dans la province.

ANALYSE DE VOLUME

Pharmacie et thérapeutique. 4^e édition. M. Paget. Publié par Foucher, Paris, France. 1968. 188 pages. Prix 11NF.

Ce volume constitue le 16^e ouvrage d'une collection préparée à l'intention des professions médicales et sociales (étudiants en médecine, infirmières, assistantes sociales et sages-femmes). C'est un précis qui a le mérite d'être petit, bref, simple, tout en étant actuel. Il remplit bien son rôle: exposer les grandes lignes de la pharmacologie et de la thérapeutique française. Les drogues sont présentées

Par ordre de fréquence décroissante, le nombre de cas diagnostiqués au cours de cette étude affectaient des chinchillas, des moutons, des poulets, des bovins et des porcs. Par ailleurs, au cours de cette enquête, le microbe ne fut isolé qu'une seule fois de chacun des animaux suivants: le chien, le chat, le vison, la chèvre, le dinde, l'oie, le canard, le canari et la perdrix hongroise.

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sous leur nom générique avec les principales marques déposées entre parenthèse. Il faut déplorer l'absence d'un index alphabétique qui aurait augmenté son utilité comme 'digest' international de langue française.

Malgré toutes ses qualités et son bas prix, il ne saurait être très utile pour un vétérinaire, à moins que ce dernier n'aie quelque intérêt à la pharmacodynamie humaine. Il n'en demeure pas moins un exemple qui pourrait servir pour inspirer un travail similaire en pharmacie et thérapeutique vétérinaire. *Louis P. Phaneuf.*